



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,497	07/20/2001	Peter Bauerlein	1201-01	4174

7590 10/03/2003

IP Department
Schnader Harrison Segal & Lewis
36th Floor
1600 Market Street
Philadelphia, PA 19103

EXAMINER

YUAN, DAH WEI D

ART UNIT	PAPER NUMBER
----------	--------------

1745

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/909,497

Applicant(s)

BAUERLEIN, PETER

Examiner

Dah-Wei D. Yuan

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 1745

Ni/METAL HYDRIDE SECONDARY ELEMENT

Examiner: Yuan

S.N. 09/909,497

Art Unit: 1745

September 29, 2003

Detailed Action

1. The Applicant's amendment filed on July 14, 2003 was received. Claims 1,9,10 were amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action (Paper No. 4).

Claim Rejections - 35 USC § 103

3. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (US 6,225,004 B1) in view of Yano et al. (US 5,827,494).

With respect to claims 1,10,12, Hayashi teaches a nickel hydride battery comprising a hydrogen storage alloy as the negative electrode, an alkaline electrolyte and nickel hydroxide as the positive electrode. The nickel hydroxide powder is mixed with a cobalt hydroxide powder, a metallic cobalt powder, a zinc oxide powder and a calcium fluoride powder. Water is also added to the resultant mixture to make a paste of active material (a bulk material). See Abstract; Column 1, Lines 10-30; Column 2, Lines 35-48; Column 4, Lines 35-43; Column 5, Lines 19-25; Claims 1-3. However, Hayashi does not teach the inclusion of an aluminum compound in the positive electrode. Yano et al. teach a nickel hydride battery having a positive electrode of nickel hydroxide. The surface of the hydroxide is covered with a mixed crystal of cobalt hydroxide and a hydroxide of at least one metal (M) selected from the group consisting of

aluminum, magnesium, indium and zinc. The aluminum hydroxide can become soluble in the electrolyte upon charging. The coating on the nickel hydroxide can maintain a long charge-discharge cycle and increase the conductivity of the electrode. See Abstract, Column 3, Lines 8-20. Therefore, it would have been obvious to one of ordinary skill in the art to coat the positive electrode active material with aluminum hydroxide (which is soluble in the electrolyte) in the battery of Hayashi, because Yano et al. teach the use of aluminum hydroxide coating on the nickel hydroxide to improve the performance of the electrochemical cell. A method of forming an active positive electrode containing aluminum hydroxide in a battery is also taught.

With respect to claims 2-4, Yano et al. teach that it is desirable to adjust the composition of the solution of mixed crystal. The amount of the aluminum hydroxide in the mixed crystal on the composite particles is 0.5 to 50% by weight based on the total weight of the cobalt and aluminum contained in the mixed crystal. Also, the resulting composite particles contain 3 to 25% by weight of the mixed crystal. As a result, it is realized that the aluminum hydroxide in the positive electrode is in an amount of about 0.02 to 12.5%. In addition, Yano et al. teach the coating on the nickel hydroxide can maintain a long charge-discharge and increase the conductivity of the electrode. Therefore, it would have been obvious to one of ordinary skill in the art to coat the positive electrode active material with about 0.1 to about 2% aluminum hydroxide on the battery of Hayashi, because Yano et al. teach the use of aluminum hydroxide coating on the nickel hydroxide to improve the performance of the electrochemical cell.

With respect to claim 5, Hayashi teaches the positive electrode further comprises a plurality of additives including cobalt oxide and at least one secondary additive selected from the

Art Unit: 1745

group consisting of Ca(OH)_2 , CaF_2 and Y_2O_3 . With respect to claim 6, Hayashi teaches the amount of the oxidic compound in the positive electrode is about 2%. With respect to claims 7 and 8, the common configurations for the nickel metal hydride battery include cylinder (such as an AA battery) and button as evidenced by David Linden (Handbook of Batteries, Second Edition, McGraw-Hill, Inc. page 33.4-33.5). With respect to claim 9, Hayashi teaches the secondary additive is at least one selected from the group consisting of Ca(OH)_2 , CaF_2 and Y_2O_3 . If CaF_2 is added in the electrode mixture, the positive electrode is essentially free from Ca(OH)_2 and/or Yb_2O_3 .

With respect to claim 11, the disclosure of Hayashi and Yano et al., differs from Applicant's claims in that Hayashi and Yano et al. do not disclose the film thickness of the aluminum hydroxide. As mentioned above, the aluminum hydroxide in the positive electrode active material can be varied from 0.02 to 12.5%. Therefore, it would have been within the skill of the ordinary artisan to adjust the content of the aluminum hydroxide in the positive electrode in order to achieve a desirable thickness of about 0.03 to about 0.1 μm . Where the general conditions of a claim are disclosed in the prior art it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Boesch, CCPA 1980, 617 F.2d 272, 205 USPQ215.

Response to Arguments

4. Applicant's arguments filed on July 14, 2003 have been fully considered but they are not persuasive.

Applicant's principle arguments are

The suggestion to make the combination of Hayashi and Yano et al. has been taken from the Applicant's own specification (using hindsight) which is improper.

In response to Applicant's arguments, please consider the following comments.

Yano reference teaches the coating of aluminum hydroxide (which is soluble in the electrolyte) on the nickel hydroxide can maintain a long charge-discharge cycle and increase the conductivity of the electrode. Therefore, it would have been obvious to one of ordinary skill in the art to coat the positive electrode active material with aluminum hydroxide on the battery of Hayashi, because Yano et al. teach the use of aluminum hydroxide coating on the nickel hydroxide to improve the performance of the electrochemical cell.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 1745


CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (703) 308-0766. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Dah-Wei D. Yuan
September 29, 2003


CAROL CHANEY
PRIMARY EXAMINER